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Application No.: 10/658,055

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Docket No.: 495812004700

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Claim 1 (currently amended): A method for recording holograms in holographic storage media, comprising:

propagating a reference beam to a holographic storage medium; and
illuminating a holographic master data mask with a beam to produce a modulated beam, the modulated beam incident the holographic storage medium to interfere and record an interference between the modulated beam and the reference beam in the holographic storage medium, wherein the holographic master data mask includes:

a holographically recorded pattern associated with an information layer that is divided into multiple data pages stored by polytopic multiplexing, each data page comprising a plurality of data pixels and a header, and
a plurality of holographically recorded patterns associated with information layers stored by at least one multiplexing technique.

Claim 2 (previously presented): The method of claim 1, wherein holograms associated with the data pages and recorded in the storage medium are separated by approximately 1 micron to 10 mm.

Claim 3 (previously presented): The method of claim 1, wherein holograms associated with the data pages and recorded in the storage medium spatially overlap within the storage medium.

Claim 4 (previously presented): The method of claim 1, wherein an image of the information layer is formed at a plane located outside of the holographic storage medium.

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Claim 5 (withdrawn): The method of claim 1, wherein the information layer is propagated to the holographic storage medium with a VanderLugt imaging system.

Claim 6 (withdrawn/currently amended): The method of claim 1, further including positioning the holographic storage medium near a Fourier transform plane of the holographic master data mask.

Claim 7 (previously presented): The method of claim 1, further including positioning the holographic storage medium near a position where the modulated beam is imaged by at least one optical element.

Claim 8 (previously presented): The method of claim 1, wherein the modulated beam is propagated to the holographic storage medium without a lens.

Claim 9 (withdrawn): The method of claim 1, wherein the modulated beam is confocally multiplexed to record multiple data masks.

Claim 10 (original): The method of claim 1, wherein the holographic storage medium includes a rectangular card.

Claim 11 (original): The method of claim 1, wherein the holographic storage medium includes a disc.

Claims 12 and 13 (cancelled)

Claim 14 (withdrawn/currently amended): The method of claim 1, wherein the holographic storage medium includes a polytopic or an angle filter.

Claim 15 (cancelled)

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Claim 16 (currently amended): The method of claim 1, wherein the ~~data mask includes a holographic storage medium with a plurality of previously recorded information layers each having multiple data pages therein.~~

Claims 17 and 18 (cancelled)

Claim 19 (withdrawn/currently amended): The method of claim [[18]] 1, wherein successive information layers having multiple data pages are aligned to define multiple stacks of data pages.

Claim 20 (withdrawn): The method of claim 18, wherein successive information layers having multiple data pages are aligned in a preselected arrangement such that authenticity of the medium may be determined.

Claim 21 (withdrawn): The method of claim 18, wherein the information layers are both polytopic and wavelength multiplexed.

Claim 22 (cancelled)

Claim 23 (original): A holographic storage medium recorded by the method of claim 1.

Claim 24 (currently amended): A data mask for storing information in a holographic medium, comprising:

a holographic data mask having a holographically recorded pattern associated with an information layer stored therein, the information layer adapted to be relayed and recorded into a holographic medium, wherein the information layer is grouped into a plurality of data pages stored by polytopic multiplexing, each data page comprising a plurality of data pixels and a header, and

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wherein the holographic master data mask includes a plurality of holographically recorded patterns associated with information layers stored by at least one multiplexing technique.

Claims 25-29 (cancelled)

Claim 30 (currently amended): A system for recording holograms in holographic storage media, comprising:

a light source; and
a holographic master data mask having a holographically recorded pattern associated with an information layer adapted to modulate an object beam and interfere with a reference beam for recording an interference pattern associated with the information layer to a holographic storage medium, wherein the information layer is grouped into a plurality of data pages stored by polytopic multiplexing, each data page comprising a plurality of data pixels and a header and wherein the holographic master data mask includes a plurality of holographically recorded patterns associated with information layers stored by at least one multiplexing technique.

Claim 31 (withdrawn): The system of claim 30, further including a VanderLugt imaging system.

Claim 32 (withdrawn): The system of claim 30, wherein the holographic storage medium is positioned near the Fourier transform plane of the information layer.

Claim 33 (withdrawn): The system of claim 30, wherein the holographic storage medium is positioned near the Fourier transform plane of the data mask.

Claim 34 (withdrawn/currently amended): The system of claim 30, further including a filter at the Fourier transform plane of the holographic master data mask.

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Claim 35 (previously presented): The system of claim 30, further including a repositioning mechanism adapted to move at least one of the data mask, the holographic storage medium, and an optical element, wherein the optical element is positioned to relay an image of the data mask to the holographic storage medium.

Claim 36 (withdrawn/currently amended): The system of claim 30, further including an optical element for each data page of the holographic master data mask.

Claim 37 (withdrawn): The system of claim 30, further including a phase mask.

Claim 38 (withdrawn): The system of claim 30, further including a 4-F optical system.

Claim 39 (withdrawn): The system of claim 30, further including substantially telecentric optical elements.

Claims 40-120 (cancelled)

Claim 121 (new): The method of claim 1, wherein the plurality of information layers are stored by confocal multiplexing.

Claim 122 (new): The method of claim 1, wherein the plurality of information layers are stored by angle multiplexing.

Claim 123 (new): The method of claim 1, wherein the plurality of information layers are stored by wavelength multiplexing.

Claim 124 (new): The data mask of claim 1, wherein each of the plurality of information layers are separately addressable by a readout beam.

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Claim 125 (new): The data mask of claim 24, wherein the plurality of information layers are stored by confocal multiplexing.

Claim 126 (new): The data mask of claim 24, wherein the plurality of information layers are stored by angle multiplexing.

Claim 127 (new): The data mask of claim 24, wherein the plurality of information layers are stored by wavelength multiplexing.

Claim 128 (new): The data mask of claim 24, wherein each of the plurality of information layers are separately addressable by a readout beam.

Claims 129 (new): The system of claim 30, wherein the plurality of information layers are stored by confocal multiplexing.

Claims 130 (new): The system of claim 30, wherein the plurality of information layers are stored by angle multiplexing.

Claims 131 (new): The system of claim 30, wherein the plurality of information layers are stored by wavelength multiplexing.

Claim 132 (new): The data mask of claim 30, wherein each of the plurality of information layers are separately addressable by a readout beam.

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